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**THE UNIONE FAUNA OF CACHE RIVER, WITH DESCRIPTION OF A NEW
FUSCONAIA FROM ARKANSAS.**

BY H. E. WHEELER.

Conchologists have seldom visited the "Sunken Lands" of Northeastern Arkansas, and little is known of their molluscan fauna. Through these vast flood-plains flow long sluggish "bayous" which for most of the year develop into respectable streams, but in long-continued droughts dwindle to a chain of muddy hollows. Such a river is the Cache. It is formed by the confluence of several small creeks which rise in the swamps of southeastern Missouri and on the western slopes of Crowley's Ridge in the upper part of Clark County, Arkansas. It flows through, or forms the boundary of, eight counties in this state. The only settlement on its banks is a small saw-mill hamlet, and the two nearest towns along its course have less than 500 inhabitants each. For more than one-half of its course of more than one hundred and eighty miles it parallels Black River, then, maintaining a more southerly direction, it continually approaches the easterly bearing course of White River, into which it empties near Clarendon in Monroe County.

Since Crowley's Ridge is the great divide between the St. Francis basin and the Sunken Lands on the east, and the wide valleys of the Cache and other (and more important) rivers on the west, a few notes on its geologic origin and history may be of interest.

Crowley's Ridge extends from southeast Missouri in a some-

what regular curve to Helena, Arkansas, on the Mississippi River, varying in width from less than a mile to more than fifteen miles. Its greatest distance from the Mississippi River is sufficiently indicated by the line between Nettleton and Osceola, approximately forty miles. Near Greenville in Green County the Ridge reaches a maximum elevation of 250 feet above the valley of the Cache, and in many sections there are denuded areas or "amphitheatres" of great extent, but of limited agricultural promise. The lowest beds are clays on which are imposed great deposits of sand and gravel, and the whole capped with loess. The loess is of early Pleistocene age, the gravels are Tertiary, the sands are also Tertiary but of a much older period, while the clays at the base are Eocene as established upon paleo-botanic data. Thrice alternately this region has been depressed and elevated during Tertiary times and before the great depositary and erosive activities of the glacial period began. As Professor Call* truly observes, Crowley's Ridge is "the residual product of long-continued erosion. It is in no sense an upheaval, nor does it, in Arkansas, contain a rock of crystalline character or of Paleozoic age. Its existence is due to the resistance it has offered to erosive forces which have leveled the greater part of the region. It stands now a silent witness to a history so wonderful that the imagination is taxed by any attempt to compass all the details."

The fauna of all the rivers west of Crowley's Ridge and east of the Paleozoic escarpment † in Arkansas possesses a peculiar interest owing to the fact that they are the modern representatives of the ancient Mississippi, which in pre-glacial times did not cut through the solid rock southeast of Cape Girardeau, Missouri, but swept through the lowlands of Black, White and Cache rivers, uniting with the Ohio south of Helena. For the same reason the fauna of St. Francis basin will claim attention as this was the subsequent channel of the Mississippi when it broke through Crowley's Ridge at Chalk Bluff on the Missouri-

* An. Rep. Geol. Surv. Ark., 1889, Vol. II, p. 131.

† This boundary is accurately enough marked for descriptive purposes by the Saint Louis and Iron Mountain Railroad.

Arkansas line, and followed in general the present course of the St. Francis River.*

In the Cache River bottoms occasional forests of cypress are found, though not as frequently as in the swamps east of the Ridge. Generally the lowlands are so flat that, as has been well remarked, "near the North boundary of Clark County it seems to be a matter of indifference to many streams whether they flow into the Cache or into the Black River." The ecologist will find in Harper's "Phytogeographical Notes on the Coastal Plain of Arkansas,"† data of much value concerning the vegetation on Crowley's Ridge and the adjacent Prairie regions.

The writer collected a large number of mussels from Cache River at Nemo in Craighead County, on the Bonnerville and Southwestern Railroad, on June 19th, 1914. Since then collecting has been done in Black River and also in the St. Francis. Little and Tyronza rivers on the East of the Ridge, and a comparative study of the forms obtained will be shortly undertaken.

Of the nineteen species listed from the Cache, the *Quadrula*, which is described below, proved to be the most abundant form, though *Crenodonta trapezoides* (Lea) and *Lampsilis hydiana* (Lea) were very common. No univalves were found except *Vivipara cunctoides* (W. G. Binn) and *Campeloma lewisii* (Walker). I am indebted to Dr. Bryant Walker for a revision of my identifications.

LIST OF SPECIES.

Lampsilis hydiana (Lea).

Lampsilis fallaciosa (Smith) Simpson.

Eurynia subrostrata (Say). A peculiar form approaching *nasuta*, but only a few females were obtained.

Eurynia lienosa (Con.)? A single young shell, but most probably of this species.

Carunculina parva (Barnes).

Proptera purpurata (Lam.).

Paraptera gracilis (Lea).

Obovaria castanea (Lea).

* See Branner, An. Rep. Geol. Sur. 1889, Vol. II, p. xiv.

† The Plant World, February 1914, Vol. 17, pp. 36-48.

Plagiola elegans (Lea).

Anodonta imbecilis (Say). The species *suborbiculata* which might be expected here was not found. Undoubtedly it will be found in the adjacent swamp ponds.

Anodonta grandis leonensis (Lea).

Anodonta texasensis (Lea).

Arcidens confragosa (Say).

Uniomerus tetralasmus (Say).

Crenodonta perplicata (Con.).

Crenodonta trapezoides (Lea).

Quadrula (Tritogonia) tuberculata (Bar.).

Quadrula pustulosa (Lea).

FUSCONATA SELECTA n. sp. Plate IV.

Shell large, solid, quadrate to rhomboidal, much inflated, and inequilateral; dorsal margin evenly curved, gradually curving into the anterior and posterior margins; anterior margin somewhat projecting but regularly rounded; posterior margin obliquely curved, meeting the basal margin in a blunt, rounded point on the base line; basal margin nearly straight, slightly incurved in front of the posterior ridge; umbonal region greatly inflated, flattened in the centre, the greatest diameter of the shell being through the anterior portion; beaks prominent, incurved, their sculpture indeterminate by reason of erosion; posterior ridge strong, roundly angled, extending to posterior point; a shallow medial depression extends from the beaks to the basal emargination, in front of the posterior ridge: the central portion of the disk is decidedly flattened; the posterior area is wide, flattened toward the margin, and markedly incurved from the posterior ridge; surface smooth, with regular and even growth-lines, having the rest-periods clearly defined; epidermis polished and shining in young and half-grown shells, rougher in mature specimens; colored bright reddish-brown, with an undercast of yellow or ochre or occasionally green, becoming with age dull red-brown, deeping to black on the umbonal region; young shells are faintly and beautifully rayed; in young shells the epidermis is "faintly, radiately puckered or festooned, giving an appearance of superficial, radiating striæ" extending from beaks to basal margin, and these are stronger on the dorsal area immediately

behind the posterior ridge; ligament moderately developed, red-brown; hinge strong; interdentum short and flat; in the right valve there is a single, strong, high, triangular and rather smooth pseudocardinal which is ragged apically, and separated from the dorsal margin by a deep, narrow, straight pit for the reception of the anterior pseudocardinal of the left valve and cut away behind to accommodate the posterior pseudocardinal and a long sharp curved lateral; in the left valve the pseudocardinals are low, ragged, and nearly confluent, the anterior one flat, and nearly parallel with the hinge line, the posterior one sharp and triangular, laterals long and somewhat curved; muscle scars deeply impressed, the anterior confluent, the posterior separate; beak cavities deep and capacious; nacre white, sometimes faintly salmon-tinted, iridescent posteriorly.

Length 67.5, height 55.5, diameter 43 mm.

Type locality: Cache River, Nemo, Craighead County, Arkansas.

Type in cabinet of H. E. Wheeler; co-types in collection of Dr. Bryant Walker, Mr. L. S. Frierson, Alabama Museum of Natural History, and Academy of Natural Sciences.

Remarks.—This species is closely related to *Fusconaia undata* (Bar.), but is readily distinguished from it by having the anterior portion of the umbonal area and the posterior ridge almost equally inflated, thus making a remarkably wide and flattened area in the middle of the shell, and by its broad, flattened and incurved posterior area. It further differs from *undata* in not having its narrow, elevated beaks, and in being without the flattened area in front, which is called by Mr. Simpson the "secondary lunule." It is too inflated to be confused with *rubiginosa* (Lea) or with *cerina* (Con.), and too inequilateral, as well as too inflated, to be taken for *hebetata* (Con.), from which it also differs in lacking the peculiar posterior end characteristic of that species.

Dr. Walker points out that young shells of the size of the one figured are rhomboid and only moderately inflated. But with increasing growth the inflation of the umbonal region is rapidly developed, and half-grown specimens are proportionately higher, shorter and more inflated than the adults. An example at this

stage measures: length 43, height 41, diameter 33 mm. At this period the resemblance to typical *undata* is quite striking.

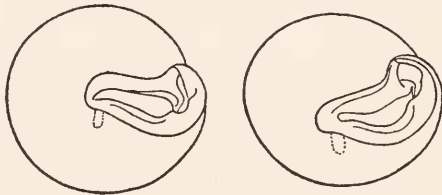
Mr. L. S. Frierson was the first to call my attention to the peculiarities of this species, and both he and Dr. Bryant Walker have generously aided me in its description.

**A NEW POLYGYRA OF THE STENOTREMA HIRSUTA GROUP FROM
GEORGIA.**

BY GEO. H. CLAPP.

POLYGYRA COHUTTENSIS n. sp.

Shell imperforate, thin, reddish-horn color; densely hirsute with very fine, short hairs. Whorls 5, those of the spire convex with a well-impressed suture; the body whorl with the per-



iphery situated high, very convex below, impressed in the umbilical region, abruptly deflected at the aperture and contracted behind the lip. Aperture transverse, narrow, widening anteriorly; parietal tooth large, erect, parallel to the lip in its lower half, then curving outward and in the upper third inward terminating in a *hook* which passes *under the lip* between the notch and the lip tooth, outer end connected with the peristome by a low ridge; outer lip reflected back against the body-whorl but *free its entire length*; lip notch stretched out so that it forms a regular curve in the lip for over half its length with the edge raised from the lip; beyond the notch the lip sweeps around the inner end of the parietal tooth and then forms a small tooth above; fulcrum medium.

Largest shell (type), diam. $7\frac{1}{4}$, alt. 5 mm., smallest 6 x 4, average 7 x 5 mm.

The character of the lip at once differentiates this species